use of subgallate of bismuth, he was able to control his bowels, and had but one passage a day.

CRANIOTOMY FOR TUMOR OF ACOUSTIC NERVE.

Dr. Willy Meyer presented a woman, 23 years old, who was referred to Dr. Meyer by Dr. George W. Jacoby. She had a slight facial palsy on the left side, with drooping of the left eyelid and the corresponding angle of the mouth. She complained chiefly of dizziness and staggering while walking, and swayed on standing. Hearing on the left side was much impaired. There was slight headache; rarely vomiting; choked discs with atrophy.

After careful observation, the case was regarded as one of tumor of the pontocerebellar angle, involving the left auditory and facial nerve, and an operation for its removal was undertaken on January 29, 1908. Preliminary to the operation, the head of the table was elevated, so that the body rested in the inverted Trendelenburg position, with the forehead resting on a special attachment, and hands and feet being supported. Following the suggestion of Dr. Dawbarn, blood was stored in both lower extremities for emergency purposes. Anæsthesia was effected by introducing two long tubes through the nostrils, and administering the anæsthetic through a funnel, a mixture of ether, chloroform, and ethyl chloride being used. In the course of the operation, additional narcotization became necessary, and this was given by means of a mask, with the anæsthetist sitting underneath the operating table. Anæsthesia was very satisfactory throughout.

The occiput was exposed through a large horseshoe incision, extending from one mastoid to the other, and reaching about two fingers' width above the occipital protuberance. This flap was then divided into two equal parts and retracted, thus giving a free exposure of the cerebellar region. After trephining with chisel the bone was removed with the rongeur forceps down to the foramen occipitale, this work being greatly facilitated by first thinning the bone with a large curved chisel. At various points, severe venous hemorrhage was encountered from the divided bone, but this was readily controlled by the application of Horsley's wax. Both lateral sinuses were fully exposed, and at last the bridge of bone in the median line cut through with Gigli saw and removed. Now the dura mater was opened and cut parallel with the border of the divided bone on either side near to the median line. Here a double ligature was placed around the longitudinal sinus and the latter divided between. A clamp, placed on the distal end, furnished additional security against hemorrhage. Now the entire surface of the cerebellum would be widely exposed. A pronounced bulging of the cerebellum was noted, palpation of which proved negative. An assistant then introduced an angulated brain spatula between the tentorium cerebelli and the cerebellum itself towards the petrous portion of the temporal bone. This was followed by a furious hemorrhage (arterial and venous), filling the deep funnel again and again, in spite of the use of tamponades and the local application of adrenalin solution. Upon quickly removing the tampon from the cavity, it was seen that the hemorrhage came from the tentorium cerebelli from an artery and vein which evidently connected with the pia mater of the cerebellum; these vessels had been torn in spite of the very gentle introduction of the blunt retractor. The hemorrhage was immediately controlled by compression with the gloved finger; the field of operation was perfectly dry. Further exploration then revealed a tumor, bluish-white in color and about the size of a cherry, near the meatus auditorius internus; it was hard to the touch, and comparatively easily shelled out in three pieces. The surrounding brain tissue was soft to the touch. A tampon was left in place to prevent hemorrhage, and a split rubber tube introduced for drainage. The dura mater flap was replaced, but would cover only the lower half of the cerebellum, on account of the acute œdema of the latter. Injury of the bulging brain by the projecting external occipital protuberance was avoided by gauze tamponade of the latter's roughened border.

Subsequent to the operation there was a good deal of oozing of cerebrospinal fluid and for a few days considerable œdema of the face; otherwise recovery was uninterrupted. Gradual improvement in the patient's eyesight and other symptoms had taken place since the operation, which was done eight weeks ago.

Dr. George Woolsey said he had operated three times for the removal of neurofibromata of the acoustic nerve—each time with a fatal result. In the first case the tumor was removed piecemeal, and the patient, although he apparently did well for a time, died of a small hemorrhage which penetrated the pons. In the second case the operation was attempted in two stages, and the patient died after the first stage. In the third case the operation was also done in two stages. In the second stage, on opening the dura, the cerebellum bulged tremendously, so that it was exceedingly difficult to reach the tumor, which had attained considerable size, being about as large as an English walnut. In all these cases, Dr. Woolsey said, the ease with which the growth could be removed depended a good deal on its size, and his experience had impressed him with the importance of making a good-sized opening in the skull, in order to secure proper access, and to take care of the protrusion of the cerebellum that usually occurred when the dura was opened. He thought that access to these tumors could best be gained by the removal of a considerable part of the lateral lobe of the cerebellum, and this view was also held and practiced by Mr. C. A. Ballance, of London, with whom he had discussed the subject about 2 years ago.

Most of the mechanical contrivances for opening the skull were not very serviceable in operations in this region. If the operation could be done in one stage, that was preferable. The observation of the blood pressure was therefore most important in these cases. The mere relief of intracranial pressure was a most important factor, and that was best accomplished by making a large opening in the skull. This combined with excision of part of the lateral lobe of the cerebellum afforded the best access to the tumor.

Dr. George W. Jacoby said that in view of the frequent occurrence of these tumors, particularly those of the acoustic nerve and of the pontocerebellar angle, cases like that reported by Dr. Willy Meyer were exceedingly instructive, and emphasized the fact that brain surgery was no longer confined, as had been said, to the motor area. In the majority of cases, these tumors involving a special nerve, such as the acoustic, facial or trigeminal, were rather small and easily enucleated. Clinically, we could usually tell whether we were dealing with a primary tumor of the acoustic nerve, or one originating from the pons, medulla or bone. In the case presented by Dr. Meyer there was marked cerebellar gait, with dizziness and almost complete blindness. These symptoms, together with persistent vomiting and headaches, pointed pretty clearly to some growth in the posterior fossa. In addition, there was increasing deafness on one side, with facial paralysis of the peripheral type and the loss of the corneal reflex on the same side indicating involvement of the trigeminal. Upon these symptoms, the diagnosis of an acoustic nerve tumor was based.

DR. CHARLES A. ELSBERG said that he personally had had two cases of pontocerebellar acoustic tumors, and in four more cases he had explored the cerebellar region for tumor. In all of his cases the diagnosis of tumor had been made by neurologists. His first patient was operated on in 1905, shortly after Dr. Woolsey had operated on his first case. The patient died on the third day from suppression of urine after the first stage of the operation had been done. The tumor was found in the exact spot where it had been located.

Dr. Elsberg said that after a careful study of these cases he had come to the conclusion that such a wide opening as was advised by Cushing or as was made in the patient shown by Dr. Meyer was unnecessary. If the bone was opened on one side, with free invasion of the corresponding mastoid, a good view of the cerebellum and the pontocerebellar angle could then be obtained by the use of retractors. The speaker said that after working out this method on the cadaver he had learned later that a similar method of approach had been proposed by Krause of Berlin; he had employed it in cutting the auditory nerve in a case of severe tinnitus aurium. The speaker made use of retractors of different sizes, carefully inserted, to draw the cerebellum towards the median line.

In a case which he saw last summer, Dr. Elsberg said, he removed an acoustic nerve tumor about twice the size of an almond. The operation was done in two stages. The patient improved steadily for a time, but ten weeks after the operation he showed symptoms of a recurrence and succumbed suddenly. The postmortem revealed a second tumor—a neuro-fibro-sarcoma lying in the middle fossa, on the base. This second tumor lay in an inaccessible region.

In not a single one of the patients operated upon by the speaker were there any marked respiratory symptoms from pressure on the medulla during the operative manipulations. With a wide opening in the skull and dura and proper care in manipulating the cerebellum, the danger from pressure on the medulla should be a small one. It is neither necessary nor advisable to follow the suggestion of Frazier—*i.e.*, to excise part of the cerebellar lobe in order to expose the cerebellopontine angle.

Dr. Meyer, in closing, said the microscopic examination of the growth removed in his case showed fibrosarcoma. The dangers of operation in this region, the speaker said, were largely due to compression of the medulla and pons. By removing a larger section of bone, tying off and dividing the longitudinal sinus and turning down a horseshoe flap of the dura mater, we were in a better position to successfully deal with growths of any size.

CARCINOMA OF THE INNER SIDE OF THE CHEEK, INVOLVING THE ALVEOLAR PROCESS OF THE JAWS AND A PORTION OF THE FLOOR OF THE MOUTH AND HARD PALATE.

Dr. L. W. Hotchkiss presented a man, 52 years old, who was admitted to Bellevue Hospital on January 1, 1908, with an extensive epithelioma of the right cheek and jaws. His previous history was negative as regards venereal disease and traumatism, but he had been an habitual pipe smoker. His trouble had begun about five months previous to his admission, when he noticed a small ulcer of the mucous membrane of the right cheek at a point which was constantly irritated by being caught between his teeth. This ulcer had steadily increased in size and for the past six weeks had begun to be very painful. The entire side of the face was swollen, the pain increased so as to become unbearable, and the skin of the outer surface of the cheek had become adherent and had finally perforated. Trismus was marked, and any attempt at eating was intensely painful. He could swallow only milk and broths, and opiates were necessary to induce sleep. A section of the growth was examined by the pathologist and pronounced an epithelioma. There was moderate glandular involvement in the submaxillary and superior carotid regions, but no evidence of internal metastasis.

Operation, January 20, 1908. This was necessarily a very extensive one. The growth, together with one-half of the lower jaw and the alveolar process of the upper jaw, and a portion of the malar bone and palate, were removed. The large gap left in the cheek was filled by a plastic flap of corresponding size which had been fashioned at the beginning of the operation. The technic of the method would be described in a paper on the subject by Dr. Hotchkiss which would appear later in the Annals